UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,069	07/21/2003	Rakesh Agrawal	ARC920030034US1	6946

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EXAMINER
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ART UNIT	PAPER NUMBER
2161	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/624,069	AGRAWAL ET AL.
	Examiner	Art Unit
	Kavita Padmanabhan	2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *21 July 2003*.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-24* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *06 November 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/21/03*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-24 are pending and have been examined.

2.   Claims 1-24 are rejected.

Specification

3.   The abstract of the disclosure is objected to because it includes phrases which

case be implied, such as "The following discloses" at line 1 of the abstract. Correction

is required. See MPEP § 608.01(b).

4.   The disclosure is objected to because of the following informalities:

The phrase "is proposed ... and presented three algorithms ..." on page 3,

paragraph [0006], lines 14-15 should be written in proper grammatical form.

Appropriate correction is required. The citations above are not meant to be

exhaustive, and are provided as examples. The applicant is advised to correct other

similar errors as required throughout the specification.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

6.   **Claims 1-24** are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Claim 1 recites the limitations "the original dataset" and "the randomized dataset"

in lines 5 and 6, respectively, of the claim. There is insufficient antecedent basis for

these limitations in the claim.

Claim 6 recites the limitation "the database" in line 3 of the claim. There is

insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitations "said database", "the original dataset", and "the

randomized dataset" in lines 5, 6, and 7, respectively, of the claim. There is insufficient

antecedent basis for these limitations in the claim.

Claim 12 recites the limitation "the database" in line 2 of the claim. There is

insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "said database" in line 7 of the claim. There is

insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "said randomized database" in lines 2-3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitations "said database", "the original dataset", and "the randomized dataset" in lines 7, 8, and 9, respectively, of the claim. There is insufficient antecedent basis for these limitations in the claim.

Claim 24 recites the limitation "the database" in lines 2-3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

The examiner will apply prior art to these claims as best understood, giving the claim language its broadest reasonable interpretation, in light of the above rejections.

Claim Rejections - 35 USC § 101

7.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8.   **Claims 1-24** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The basis of this rejection is set forth in a test of whether the invention is categorized as a process, machine, manufacture or composition of matter and if the invention produces a useful, concrete and tangible result. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) are found to be non-statutory subject matter. For a method claim to pass muster, the recited process must produce a useful, concrete and tangible result.

In the instant case, **Claims 1-18** recite methods, but the methods claimed appear to be directed towards abstract ideas and do not produce a useful, concrete and tangible result.

Regarding **claim 1**, the active method steps recited (i.e., randomly dropping true items, randomly inserting false items, and estimating the support of an association rule) do not produce a useful, concrete nor tangible result because merely estimating the support of a rule does not constitute a result, but is merely a step that is performed. **Claims 2-18** are similarly nonstatutory.

Claims 19-24 recite a program storage device tangibly embodying a program of instructions to perform a method that is substantially the same as the method recited in claims 1-18. Therefore, these claims are similarly non-statutory for the same rationale.

The examiner will apply prior art to these claims as best understood, with the

assumption that applicant will amend to overcome the stated 101 rejections.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10.   **Claims 1-24** are rejected under 35 U.S.C. 102(a) as being anticipated by

Evfimievski, "Randomization in Privacy Preserving Data Mining," December 2002,

ACM SIGKDD Explorations Newsletter, Volume 4, Issue 2, pages 43-48.

In regards to **claim 13**, **Evfimievski** teaches a method of mining association rules

from datasets **(Evfimievski; p43, left column, paragraph 2, lines 13-14 – "an**

algorithm for mining...") while maintaining privacy of individual transactions within

said datasets **(Evfimievski; p43, left column, paragraph 3, lines 7-9 – "a solution is**

preferred...") through randomization **(Evfimievski; p44, right column, paragraph 6,**

lines 1-2 – "consider randomization..."), said method comprising:

- creating randomized transactions from an original dataset by:

    - randomly dropping true items from each transaction in said original

      dataset **(Evfimievski; p43, left column, paragraph 3, line 10 – right**

> column, paragraph 1, line 2 – "before sending it's piece of data...";
>
> p44, right column, paragraph 6, lines 2-4 – "Suppose that each
>
> client..."; p45, left column, paragraph 4, lines 7-8 – "A natural way to
>
> randomize..."), and

- ▪ randomly inserting false items into each said transaction (**Evfimievski;
  p43, left column, paragraph 3, line 10 – right column, paragraph 1,
  line 2 – "before sending it's piece of data..."; p44, right column,
  paragraph 6, lines 2-4 – "Suppose that each client..."; p45, left
  column, paragraph 4, lines 7-8 – "A natural way to randomize...");**

- – creating a randomized dataset by collecting said randomized transactions
  **(Evfimievski; p45, left column, paragraph 8, lines 1-3 – "In the set T' of
  randomized transactions...");** and

- – mining said database for association rules after said dropping and inserting
  processes by estimating nonrandomized support of an association rule in the
  original dataset based on the support for said association rule in said randomized
  dataset **(Evfimievski; p45, left column, paragraph 9, line3 – right column,
  paragraph 6, line 9 – "Therefore, techniques were developed that allow to
  estimate...").**

In regards to **claim 14**, **Evfimievski** teaches the method in claim 13, wherein said

process of creating randomized transactions comprises per transaction randomizing,

such that randomizing operators are applied to each transaction independently

(Evfimievski; p45, left column, paragraph 4, line 13 – paragraph 8, line 11 – "Given a transaction t...").

In regards to **claim 15**, **Evfimievski** teaches the method in claim 13, wherein said process of creating randomized transactions is item-invariant such that a reordering of said transactions does not affect outcome probabilities **(Evfimievski; p45, left column, paragraph 4, line 7 – paragraph 8, line 11 – "A natural way to randomize..."; also, par [0048] of applicant's specification states that select-a-size operators are item-invariant)**.

In regards to **claim 16**, **Evfimievski** teaches the method in claim 13, wherein said dropping of said true items and said inserting of said false items are carried out to an extent such that the chance of finding a false itemset in a randomized transaction relative to the chance of finding a true itemset in said randomized transaction is above a predetermined threshold **(Evfimievski; p46, left column, paragraph 3, lines 1-13 – "In order to prevent...")**.

In regards to **claim 17**, **Evfimievski** teaches the method in claim 16, wherein said predetermined threshold provides that the chance of finding a false itemset in said randomized transaction is approximately equal to the chance of finding a true itemset in said randomized transaction **(Evfimievski; p46, left column, paragraph 3, lines 1-13 – "In order to prevent...")**.

In regards to **claim 18**, **Evfimievski** teaches the method in claim 13, wherein said

process of creating randomized transactions is performed independently on said

transactions prior to the transactions being collected in said randomized database

(Evfimievski; p45, left column, paragraph 8, line 1 – paragraph 9, line 3 – "If

different clients have transactions...").

Claims 1-6, claims 7-12, and claims 19-24 are each rejected with the same

rationale given for claims 13-18, respectively.

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to **Kavita Padmanabhan** whose telephone number is **571-**

272-8352. The examiner can normally be reached on Monday-Friday, 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Safet Metjahic can be reached on 571-272-4023. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Kavita Padmanabhan   January 4, 2006
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